AGENDA ITEM : Telecommunications Infrastructure

UPDATE ON STANDARDS CRITERIA USED IN THE GRANT AWARD PROGRAMS:

At the April 2000 Library of California (LoC) Board meeting the Board adopted the following criteria for the regional telecommunications infrastructure:

- Regional telecommunications programs geographically conform to Library of California planning regions, with participation by libraries that meet Library of California Interim Eligibility requirements and are capable of supporting the appropriate technologies.
- When a Regional Library Network replaces a planning region, eligibility consists of membership in the Regional Library Network and the ability to support the appropriate technologies.
- Regional Library Networks address regional resource sharing protocols and ongoing regional telecommunications infrastructure needs in their annual Plans of Service.
- Regional Library Network gateway catalogs are available to the general public via remote Internet browsers.
- Regional Library Networks use the Z39.50 protocol as the access protocol for their telecommunications infrastructure programs.
- Regional telecommunications programs should include electronic interlibrary loan with the goal of public-initiated loan requests via the Internet.
- Regional Library Networks address the issue of access to materials outside the region through the adoption of standards and resource sharing protocols in collaboration with other Regional Library Networks.
- Libraries requesting Z39.50 server software apply through the Library of California Z39.50 Server Software program.

Among the applications received for the Regional Telecommunications Infrastructure grants was a proposal to utilize the INN-Reach system software developed by Innovative Interfaces Inc. (III) for a number of libraries in the Golden Gateway Library Network. The INN-Reach system creates a distributed union catalog for all member systems, includes real time circulation status and enables automated management of lending with local libraries.

Initial staff review of the application indicated that the Z39.50 protocol was not the basis for the establishment of the union catalog and therefore was not eligible under the guidelines for telecommunications infrastructure grants.

Subsequent examination and discussion with the vendor and users clarified that there can be Z39.50 access to the union catalog created by the collaboration of libraries. If Z39.50 is enabled, access to the union catalog does conform to the Board's policy. Present and future grant proposals and applications that propose this approach will be evaluated with this additional information.

The interlibrary loan and direct loan components, however, use a proprietary approach and require that participating libraries have an Innovative Interfaces automation system to fully utilize **all** the features of the product. Library sites that are not users of the Innovative Interfaces software may participate to a limited extent by utilizing a dedicated workstation for mediated access to resource sharing mechanisms.

The vendor states that the product may eventually utilize the National Information Standards Organization (NISO) Circulation Interchange Protocol (NCIP) but does not do so at this time. NCIP is a standard currently in development (see chart below) that would allow disparate circulation systems to talk to each other directly by using an agreed upon set of messages. The International Standards Organization (ISO) 10160/1016 Interlibrary Loan (ILL) Application Service/Protocol Definitions (see chart below) allow patrons to send requests directly to other lending libraries in a way similar to functionality provided by the INN-Reach system.

The NCIP protocol and ISO 10160/1016 Interlibrary Loan (ILL) Application Service/Protocol Definitions, if embraced by Innovative Interfaces and other automation vendors, would allow the functionality of much of the INN-Reach system while adhering to an open standards approach. Marvin E. Pollard Jr., project manager, Unified Information Access System, California State University System, indicates that this type of interoperability is one of the goals of their project. The Board has not stipulated a standard protocol for interlibrary loan and/or direct loan transactions at this time. On May 15th technical staff from each region involved in the LoC Telecommunications Infrastructure grants will meet at the California State Library to discuss this and other issues and advise on future courses of action.

As Exhibit A, *A Study of State Library Agencies' Information Technology Standards Policies and Practices* notes each State Library agency has a role in the promulgation of relevant standards to achieve positive outcomes for resource sharing investments. The Library of California Board by setting standards for telecommunications infrastructure activities does work to assure effective use of funds for regional and statewide resource sharing. Table 1 lists a number of standards that are involved in most resource sharing applications. Staff recommend continuing support for the Z39.50 protocol as an effective method for resource sharing while at the same time investigating other approaches and standards that will assure efficiency in the use of limited funds.

Standards **CURRENTLY SUPPORTED** by the Library of California

Standard Designation	Standard Name	Benefit	Outcome
*NISO Z39.2-1994	Information Interchange Format (MARC) Specifies the requirements for a generalized interchange format that accommodates data describing all forms of material. Describes a generalized structure designed specifically for exchange of data between processing systems. The basis for the MARC (MAchine-Readable Catalog) record, this standard specifies the requirements for a generalized interchange format that can be used for the communication of records in any media. The MARC 21 Format for Holdings Data provides a consistent structure for holdings data that may be a requirement for input into the CDL hosted LoC Periodicals/Serials database.	Critical to the implementation of automation for storing, transferring, and retrieving bibliographic information. It was first issued in 1971.	Ease of exchange of cataloging records and consistent display and retrieval of those records for libraries and patrons.
NISO Z39.50 1995	Now in version 3, Z39.50 defines a standard way for two computers to communicate and share information. Designed to support searching and information retrieval - full-text documents, bibliographic data, images and multimedia - this standard is based on client-server architecture and is fully operational over the Internet. Specifies access control, resource control, extended services, and a "help" facility and addresses communication between the client and server. U.S. National Profile (in development) would resolve ambiguities in implementation of the standard.	Allows library catalogs to be searched with the client's interface and allows multiple catalogs to be searched at once. Records may be downloaded by client in MARC format.	Building block of resource sharing systems; allows library catalogs based on different vendors's software to be searched from one interface.

STANDARDS TO CONSIDER for Support by the Library of California

Standard Designation	Standard Name	Benefit	Outcome
**ISO 10160/10161	Interlibrary Loan (ILL) Application Service/Protocol Definitions. Designed to allow, with a minimum of technical agreements outside the standards, the interconnection of computer systems from different manufacturers, under different management, of different levels of complexity, and of different ages. In addition, the protocol provides support for the control and management of ILL transactions for both lending and borrowing activities.	Allows you or your patrons to send and receive requests directly to and from your trading partners, without the necessity of being a member of XYZ organization or paying transaction fees.	As trading partners and neighboring consortia acquire ISO 10161 compliant systems costs for processing requests can be reduced (no third party transaction fees) Statistical reporting simplified.
NISO Z39.83-200x	NISO Circulation Interchange Protocol (NCIP) Draft Standard. This standard defines a protocol that is limited to the exchange of messages between and among computer-based applications to enable them to perform the functions necessary to lend items, to provide controlled access to electronic resources, and to facilitate co-operative management of these functions. Utilizes XML,	Allows disparate circulation systems to talk to each other directly. Applicable for direct consortial borrowing, self-service circulation and interlibrary loan uses.	Greater interoperability resulting in increased ease of resource sharing.
NISO Z39.71-1998	Holdings Statements for Bibliographic Items Specifies display requirements for holdings statements for bibliographic items to promote consistency in the communication and exchange of holdings information. The standard applies to holdings statements for bibliographic items in any physical or electronic medium. It applies to both manual and automated means of recording holdings. This new standard replaces both the Serial Holdings Standard Z39.44 and the Non-Serials Holdings standard Z39.57.	Establishes a standardized method for union list participants to report library holdings.	Consistency in union list information, reduced cost for development of union lists.

*The National Information Standards Organization (NISO) develops and promotes technical standards used in a wide variety of information services. NISO is a nonprofit association accredited as a standards developer by the national clearinghouse for voluntary standards development in the U.S. NISO's Voting Members and other supporters include a broad base of information producers and users including libraries, publishers, government agencies, and information based businesses. NISO is a leader in shaping international standards.

The use of an ANSI/NISO Standard is voluntary. That is, the existence of this NISO Standard does not preclude anyone, whether or not that person has adopted the NISO Standard, from manufacturing, marketing, purchasing, or using products, processes, or procedures that do not conform to the NISO Standard. However, the use of standards (those developed by NISO as well as other standards-developing organizations) has proven to be in the best interests of any industry wishing to increase its effectiveness and efficiency in the areas of product development, manufacturing, and marketing and, therefore, such use is encouraged by ANSI, NISO, and all other standards-developing organizations.

**The International Organization for Standardization (ISO) is a worldwide federation of national standards bodies from some 100 countries, one from each country. ISO is a non-governmental organization established in 1947. The mission of ISO is to promote the development of standardization and related activities in the world with a view to facilitating the international exchange of goods and services, and to developing cooperation in the spheres of intellectual, scientific, technological and economic activity. ISO's work results in international agreements which are published as International Standards.

GENERAL OVERALL PROGRAM UPDATES:

CURRENT STATUS:

Z39.50 Server Software Grants

The purpose of funding the development of Z39.50 connectivity is to establish the infrastructure necessary to create a virtual statewide database representing the holdings of California libraries. Such a virtual database is an important component of a cluster of access services envisioned in the Library of California Act.

Five grants for Z39.50 server software have been awarded since the November Board meeting when additional funds were allocated. As of April 6th two grants are pending and six grants remain.

Staff continue to promote grant availability through communications with the Regional Library Networks. Expenditures of funds to enable Z39.50 access to the applicant library's catalog must be completed by June 31st for these grants.

Consistent with the Board's policy, as the regional library networks are now allocating network funds for telecommunications infrastructure staff recommend that support in the form of Z39.50 Server software grants for Z39.50 connectivity be integrated into regional plans of service. Staff will continue to provide technical assistance and monitor this aspect of resource sharing networks.

Telecommunication Infrastructure Grants

Summaries of grant activity for each region were given at the February Board meeting. Reports from each region on the status of their grants for the third quarter are due in April. Staff will summarize available information at the time of the Board meeting.

As previously mentioned staff from each region involved in the LoC Telecommunications Infrastructure grants will meet at the California State Library on May 15th to discuss standards criteria for resource sharing projects, progress on regional projects and to advise staff on future courses of action.

Other programs of Interest to the Board

E-Rate Program

The Schools and Libraries Division (SLD) of the Universal Service Administrative Company (USAC) provides affordable access to telecommunications services for all eligible schools and libraries in the United States. The USAC is a not-for-profit corporation appointed by the Federal Communications Commission (FCC) to ensure that the benefits of telecommunications services reach students and communities across the country. Funded at up to $2.25 billion annually, the Program provides discounts on telecommunications services, Internet access and internal connections.

The California State Library is responsible for the approval of technology plans from each applicant public library. Updated technology planning forms and instructions are posted to the CSL web site to improve access to these forms and to broaden awareness of the opportunities afforded by the E-Rate program to libraries. The application window for next year has recently closed. Staff anticipate an increase in the number of technology plans needing review based on the number of applicants who began the E-Rate program in it's first year, 1998. Technology plans must be reviewed every three years.

The InFoPeople Project is offering an *Internet Policy and Filtering Update* training course in May and June for California libraries in response to the requirements of the Children's Internet Protection Act (CIPA) legislation. The CIPA will affect E-Rate participants who utilize funding beyond basic telephone service.

RELATED ISSUE TO COME BEFORE THE BOARD IN THE FUTURE:
Development of Regional Telecommunications programs.

Relevant Committee: Support Services
Staff Liaison: Ira Bray

A Study of State Library Agencies'
Information Technology Standards
Policies and Practices

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Executive Summary

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Executive Summary

In 1998, the National Information Standards Organization (NISO) funded a research study to compile information about state library agencies' standards policies and practices. The goals of the study were to:

- Help NISO better understand the current use of standards and need for standards information at the state level
- Provide state library agencies with a compilation of state library agencies' policies, practices, and issues related to information technology standards.

The study had the following objectives:

- Survey state library agencies to document existing standards policies and initiatives
- Document existing (or planned) processes and procedures for identifying, learning about, selecting, implementing, and reviewing standards
- Identify key issues and barriers to standards selection, adoption, and use
- Identify critical areas where standards are being used or are needed
- Develop a set of recommendations for NISO, the state library agencies, and their professional organization, the Chief Officers of State Library Agencies (COSLA).

Two phases of data collection occurred. The primary data collection instrument was a questionnaire distributed to all fifty state library agencies and the District of Columbia followed by in-depth telephone interviews with selected agencies.

Thirty-eight state library agencies returned completed questionnaires, a 75% response rate. Detailed profiles of the respondents were developed to highlight key characteristics. Nearly 75% of the respondents are involved standards-related activities such as recommending standards, promoting standards, and identifying standards for use by state libraries. Yet only about 25% of the respondents have legal responsibility for standards setting and have written policies and procedures related to standards. About 50% provide education and training on standards.

Agencies identified many advantages that standards can offer, including: connectivity & networking; effectiveness/improved service; basis for vendor and product selection; assistance in carrying out responsibilities; and compatibility. Yet only two NISO standards are required or recommended by more than 50% of the respondents: Z39.2, MARC (76%) and Z39.50, the Information Retrieval Protocol (63%). A primary driver for the adoption and promotion of standards is the extent the standards assist in mission-critical activities related to resource sharing.

Many of the respondents viewed libraries' increasing use of information technologies and the networked environment leading to more important roles for standards. This networked environment will require investment in infrastructure to ensure systems can connect and interoperate, and there will be more need for education and expertise within the agencies to

provide the leadership role in developing the infrastructure and use of standards. Respondents also identified areas in which standards are needed including digitization, electronic publishing, patron authentication and patron record information, and metadata.

In addition to presenting the findings from the data collection activities, this study analyzed the levels of standards adoption and drivers for standards adoption. The highest utilized NISO standards can be seen as infrastructure standards that underlie a state's abilities to improve resource sharing. The study also identified key issues and challenges for NISO and the agencies that include: providing timely and accessible standards information; integrating the use of many standards; increasing the level of standards adoption; and the determining the roles of state library agencies in national standards development.

Based on the data analysis, the study offers a set of recommendations to NISO and the state library agencies and the COSLA. Associated with the recommendations are specific actions that can be taken.

The recommendations for NISO are:

- Develop appropriate standards information services that address the needs of the state library agencies
- Increase communication and outreach to state library agencies to improve NISO visibility
- Recognize that libraries need standards information on NISO and non-NISO standards to address the challenges of the digital and networked revolution
- Provide a clearinghouse for national projects that utilize NISO standards and assist in coordinating a network of state library "standards junkies"
- Publicize NISO membership options to state library agencies.

Recommendations for State library agencies and COSLA are:

- Support standards implementation by the states' libraries
- Improve communication and information sharing among state library agencies
- Use state library agencies' websites more effectively to promote and share information about standards
- Support NISO through membership and participation in the standards development process.

The roles of the state library agencies are multi-faceted, their organizational structures are diverse, and their responsibilities vary as arbitrators or setters of standards for an individual state's libraries. These agencies play pivotal roles in the use of technology, and therefore standards, in their states. The agencies, although a small customer base in absolute numbers, can or do have positions of influence over a large number of potential NISO customers and customers of technology vendors who are NISO members and implementors of NISO standards. The agencies may constitute a significant market for appropriate, value-added standards information services. Even more importantly, they serve as a conduit for and/or promoter of NISO standards to the individual states' library communities.